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ABSTRACT

Issues regarding the relationship between schooling and labor market success are examined in this paper through review of previous research and consideration of additional data. The review of existing evidence on the changing labor market position of college graduates focuses on the work of Margaret Gordon and Richard Freeman with some attention to several other authors whose work is closely related to theirs. A reanalysis of questions on the relative earnings of recent college graduates uses data from two sources: The Current Population Report's series "Consumer Income" and data on the experiences of new labor market entrants since 1967 taken from the National Longitudinal Surveys sponsored by the Department of Labor. On the issue of whether there have been changes in relative earnings among recent male college graduates, the author concludes that the existing work is incomplete and involves inappropriate comparisons, casting doubt on the usefulness of findings and implications. He draws the following conclusions from reanalysis of published data: (1) There are declines in relative earnings among new labor market entrants as a group and (2) declines in relative earnings among older and more experienced college graduates. He contends that results do not support the hypothesis that a recent oversupply of college graduates has led to declines in relative earnings among new college graduates. (Author/JT)

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On the Declining Labor Market
Value of Schooling

by

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Recent research into the relationship between schooling and labor market success includes assertions of a dramatic decline in the value of college during recent years, and one report states that the "25-year boom in the college job market (has) withered into a major market bust." Unfortunately, a goodly portion of this research has been based on data less than optimal for detailed analysis of the actual experiences of new college graduates, much less of high school graduates or other new labor market entrants. Yet an analysis such as this should be important for gaining a better understanding of the nature of the decline.

Even with adequate data many complicating factors need to be taken into account in research on the declining value of college. According to some, the decline began at the end of the 1960's, a time characterized by presence of many potent forces, including the labor market entry of the post-World War II baby boom, rising inflation, campus unrest, and the discharge from military service of over a million men per year. The strains and imbalances resulting from the interplay of these forces and other trends could be related to the slowdown in campus recruiting by employers occurring in this era and to the evident failure of starting salary offers to new graduates to keep pace with inflation.

Only with adequate data on the experience of new labor market entrants and reentrants is it possible to assess the impact of such forces. And only such information can provide answers to the many policy-relevant questions raised by the recent research. In what ways has the labor market value of college declined? To what extent have those with less than college graduation also been affected? What is the labor market position of recent college graduating classes relative either to earlier

graduating classes or to those with less schooling? What is the labor market position of each of these groups after the passage of a few years at work? Finally, what do the experiences of these groups of young men, considered as a whole, suggest about the probable situation throughout their careers or about the probable situation facing future labor market entrants?

This study attempts to illuminate some of these issues by first reviewing existing evidence on the changing labor market position of college graduates, especially by reviewing the work of Margaret Gordon and Richard Freeman, two of the most widely-read authors on the topic. Attention is also paid to several other authors whose work relates to the key issues, including the work of such students of the labor market as Charles Killingsworth, Denis Johnston, Ivar Berg and James O'Toole.

Next, the paper takes up a reanalysis of questions on the relative earnings of recent college graduates by using data from two sources. One source is the Current Population Report's series Consumer Income, a source already used by Freeman. The present use suggests that prior analyses may have been incomplete or that the comparisons that have been made inappropriate ones. Second, data on the experiences of new labor market entrants since 1967 is taken from the National Longitudinal Surveys, a research project sponsored by the Department of Labor and conducted by the Bureau of the Census and the Center for Human Resource Research, The Ohio State University. Information on a national sample of young men, ages 14-24 when first interviewed in 1966 is used, and analysis is based on personal interviews conducted annually between 1966 and 1971. Both the NLS and Consumer Income data are found to yield

new findings that conflict in part with existing beliefs, and to reopen the issue of whether the labor market value of college has declined.

Before proceeding, however, it is vitally important to advance several caveats for what follows. First of all, this paper has little to say about the contributions of higher education to American society. Rather, it is only focused on the narrow dimension of the labor market position of recent graduates of institutions of higher education, and no attention is devoted to the other roles which higher education plays in American society, or to the other ways that its graduates are affected.

Second, the paper does not even take as its focus all graduates of institutions of higher education. The issue of a declining labor market position for college graduates relates primarily here to white, male college graduates. Specifically, this paper is primarily addressed to the experiences of white males who have graduated with bachelor's degrees. No attention is paid to the special circumstances of women or blacks, nor is the job situation of those with more than four years of college reviewed. With this narrow focus properly placed into perspective, we now turn to a review of some of the existing work.

A good deal of the evidence existing on the declining labor market position of college graduates has been adduced by Margaret Gordon and Richard Freeman. An important part of Gordon's work, undertaken under the auspices of the Carnegie Commission on Higher Education, is the analysis of historical trends in employment and education. By comparison, Freeman's work is largely focused upon events of the last decade and is also somewhat more ambitious econometrically. Considered together, the

studies of these authors cover many of the relevant issues bearing on our topic and could be regarded as containing such information as exists on the causes of the downturn and, hence, on relevant policy alternatives, if any.

Gordon's Studies

To begin, Gordon (1974; Carnegie, 1973) showed that employment among professional and managerial workers has increased far faster than has total employment during this century. "Among men, the share of these two groups in total employment rose from about 10 percent in 1900 to approximately 28 percent in 1970 (Carnegie, 1973)." Considering professional and technical workers only, the rise was from approximately 3.4 to 14 percent during this period. The phenomenal growth in the numbers of job opportunities for highly-trained workers helps to explain why the market for the seemingly ever-increasing number of American college graduates has been generally strong during the past seventy years.

At the same time, the changes occurring in the occupational distribution of employment between 1900 and 1970 favoring college-educated workers were accompanied by massive changes in the distribution of employment by industry. In 1900, over two-thirds of all workers were found in the "goods-producing" sector: agriculture, forestry, fishing, mining, manufacturing and construction; the rest were in the service-producing sector. However, by 1970, the relative importance of the two was nearly reversed, with almost two-thirds in service-producing industries: professional, personal, business and other services; trade; government; transportation, communications and other public utilities; and finance,

Insurance and real estate. Among the most dramatic shifts were the decline in the percent employed in agriculture; the growth in services, reflecting to some degree increased leisure and higher levels of income in the population; and, of course, the pervasive influence of automation and other technological change.

Regardless of the favorable nature of the trend over the entire 70-year period, Gordon's analysis also indicates that the labor market opportunities for highly educated workers (or demand) have not increased step-by-step with the number of college graduates available for work (supply). Uneven growth has led to periods of shortages and of surpluses, affecting the types of jobs taken by college graduates. In Gordon's work, three periods were analyzed: 1900-50, 1950-68, and post-1968. From 1900 to 1950, demand expanded "generally" along with supply (Carnegie, 1973, pp. 55-57). Then, between 1950 and about 1968, demand kept pace with, or exceeded, supply. According to Gordon, the factors responsible for this most favorable period for college graduates included: rising GNP, increases in R&D spending, growth in the aerospace effort, and increasing school enrollments, requiring more teachers (Carnegie, 1973, p. 6). After 1968, however, the weak economy, decreases in R&D spending, and a leveling of school enrollments and teaching positions, coupled with a still-increasing supply of college graduates, combined to adversely affect the employment position of college graduates.

Interestingly, data on the "golden age" from 1950 to the early 1960's also has been studied from another point of view by Charles

Killingsworth:

In a series of papers in 1963 and 1964, I argued that a substantial part of the excessive unemployment then prevalent in the American economy was attributable to structural changes since the early 1950's. Among the structural changes that I emphasized were new technology and changing consumption patterns. These changes, I argued, had caused a long-run decline in the demand for low-skilled, poorly-educated workers and a long-run rise in the demand for high-skilled, well educated workers. This "twist" in the demand for labor, I further argued, had proceeded farther and faster than adjustments in the supply of labor, resulting in a growing imbalance in the labor market (1968, p. 12).

The evidence that Killingsworth used were changes in rates of labor force participation and unemployment, which favored workers with higher levels of education. However, Johnston's examination of more recent data has led to the conclusion that the impact of Killingsworth's labor market "twist" was dissipating by 1969 (Johnston, 1971). He attributes this more recent change in part to the manpower programs of the 1960's and to the business boom of 1964-69, which halted the deterioration in the position of less educated workers. However, he also points out that, given the very substantial increases in the supply of college graduates, the "twist" favoring the well-educated may also be halted through deterioration in the competitive position of the highly educated. Thus, Gordon's evidence as well as that of Killingsworth and Johnston describe 1950 to the middle- or late-1960's as a favorable period for well educated workers, and describe the more recent years as a less favorable one.

Of course, other authors have asserted that, even during the "golden age" of 1950 to approximately 1968, there were signs of a deteriorating labor market position for highly educated workers. Berg is one who has

written about "the problem of a growing supply of educated people (1971, p. 65)," in which increasing numbers of college graduates would be taking lower than college-level jobs, to their own dissatisfaction and at a loss for society. The downturn since 1968 has produced additional data to support this view (e.g., O'Toole 1974a, 1974b; Rawlins & Ulman, 1974).

Unfortunately, it is difficult to compare and contrast the views of these several authors, for any simple categorization of their views is necessarily an oversimplification. For example, although Gordon has performed extensive analyses of trends in demand (e.g., the growth of employment among salaried managerial workers) while Berg, O'Toole, Rawlins and Ulman seem to be emphasizing the growth in supply (i.e., over-supplies of well educated workers), all of their studies have involved both demand and supply. Hence, it is incorrect to characterize Gordon's work as demand-oriented or Berg's as supply-oriented. Likewise, even though Gordon and Killingsworth seem to be pointing to different factors in discussing labor market changes occurring since 1950 (i.e., Gordon discusses the ups and downs in GNP, R&D spending, and school enrollments, while Killingsworth had emphasized long-term structural change), it would not be completely correct to describe their points of view as comprising competing hypotheses. Rather, the careful reader of the works of these several authors can find a great many points on which analysts seem to be in agreement or, at least, not in disagreement.

In any event, Gordon's analysis provides a basis for prognostication about job opportunities for college educated workers. She indicates that

the job market for future college graduates should be more favorable overall in the 1980's than it has been for graduates in the 1970's, except for those in the teaching profession, whose position may continue to worsen. And, for those who have already invested in a college education, she sees a possible promotion squeeze arising in their future. Evidently, however, she has found it much more difficult to make predictions about the relative earnings of college graduates than about their job prospects. For one thing, favorable job prospects and earnings advantages do not always occur together. Even though the 1930's and 1940's were years of reasonably strong demand for highly-educated workers, these were decades in which their earnings advantage was actually diminishing (Carnegie, 1973, pp. 55-57). That is, the earnings advantage enjoyed by highly-educated workers in comparison to those with lower levels of schooling was not maintained between 1930 and 1950. By contrast, in the period 1950-68, when demand was strong, the earnings advantage held steady. As Gordon points out, economic marginal productivity theory would seem to suggest that the wages of college educated workers will decline in relation to the wages of other workers in the event of an oversupply of those with college degrees. On the other hand, she notes that the "job competition model" developed by Lester Thurow (1969, 1974, 1975) suggests that the chief impact of an "oversupply" of college-trained workers may be through a "trickle-down" effect on those with less schooling. In this case, workers with college education would take for themselves the best jobs that might have been given to high school graduates. Thus, an oversupply of those with college degrees may lead to declines in both

their own earnings and the earnings of several other groups of workers as well, and not necessarily change relative positions.

Freeman's Work

Presumably, the work of Richard Freeman is useful in providing empirical answers to such questions, for his econometric studies (Freeman 1974, 1975, 1976, forthcoming; Freeman and Hollomon, 1975) have focused on events of the past decade and especially upon changes in relative earnings. In brief, Freeman's analyses purport to show that the supply of college graduate labor market entrants grew faster than demand, causing relative earnings to fall. Unfortunately, the instances in which Freeman has used incomplete data or has made inappropriate comparisons have the result of casting doubt upon the usefulness of his studies for providing answers to questions on relative earnings.

Turning first to the issue of whether the supply of college graduates grew faster than demand, Freeman's analysis is instructive but somewhat incomplete. On the demand side, he points out that employment in industries employing large numbers of college graduates grew at a rate of 4.4 percent per year between 1960 and 1969, and slowed to 2.8 percent per year between 1969 and 1974.* By contrast, employment in other industries grew at only

*Considering industries separately, sizable declines were registered in the following "college-intensive" categories: federal public administration (from 2.0 percent per year to 0.0); college-intensive manufacturing, including ordnance, chemicals, petroleum, professional instruments, aircraft, electrical machinery, and computing machinery (from 3.6 minus 1.2); and education (6.2 to 3.9). See Freeman, 1976, p. 64.

2.0 percent per year in both periods (i.e., from 1960 to 1974). Thus, while the growth in demand for college graduates still exceeded the growth in demand for those with less than a college education since 1969, according to Freeman this was still not fast enough.*

On the supply side, Freeman estimates the number of new college graduates who are seeking work each year (i.e., who are not going to graduate school). He compares these figures with both (a) the number of new high school graduates seeking work each year (i.e., not going to college; see Freeman, 1974, Table 1) and (b) the size of the male civilian labor force (1975, Table 6). He shows that, due to the expansion of graduate school enrollments, there were no large increases in the numbers of new college graduates until the late 1960's,** when demand was falling.

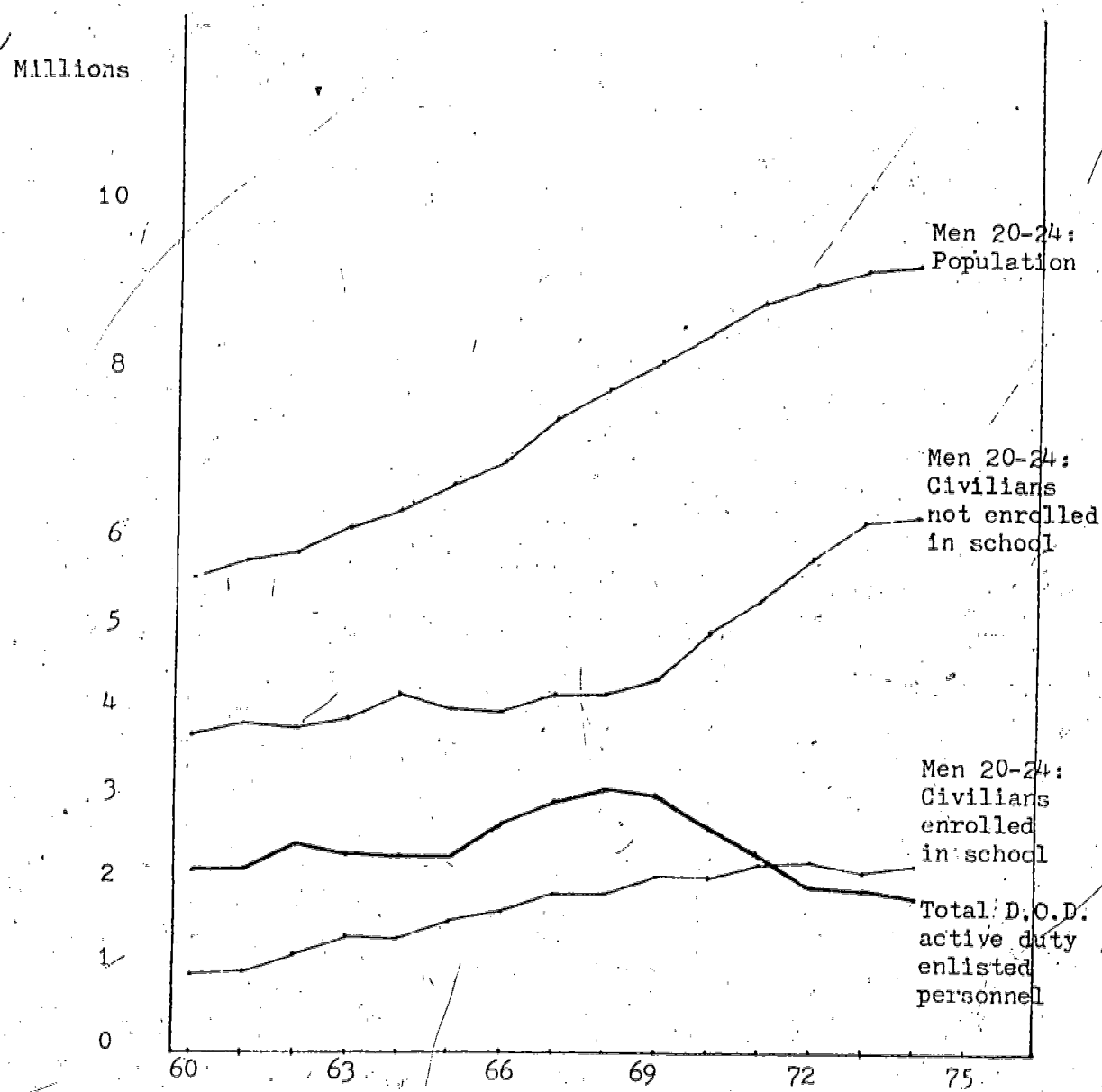
*Actually it is not completely clear what Freeman is saying about the timing of the change in relative demand. In one case, he states that a change occurred in 1965, even though the data he presents would seem to place the change in 1970 (Freeman, 1974, pp. 103-105 and Table 2). In this instance, the data he presents can be construed to show that the demand for high school graduates rose from 2.0 percent annually between 1950 and 1970 to 5.0 percent after 1970 (1974, Table 2), which conflicts with other figures presented by Freeman (1976, Table 5, p. 64), which show no increase (i.e., 2.0 percent annually both before and after 1969).

**Actually there may be an error in his estimates of the number of college graduates seeking work. In attempting to arrive at these numbers, he subtracts the number entering graduate school from the number of B.A.'s granted. Specifically, it appears that he has subtracted the number of first-year students enrolled for master's and doctor's degrees, although first-year students enrolled for doctor's degrees is probably not a relevant group (see Freeman, 1974, Table 1; 1975, Table 6). For more on this point, see Freeman, 1976, pp. 67-68; Freeman, forthcoming, note 2.

Unfortunately, none of Freeman's estimates of the flows of new labor market entrants reflects any adjustment for the effects of the war in Southeast Asia, which is a worrisome omission.* Figure 1 provides perspective on the possible influence of the war. First, although the population of men 20 to 24 years of age grew at an annual rate of 4.2 percent between 1960 and 1969, the number potentially in the civilian labor market (i.e., not in school and not in the armed forces) grew by only 1.7 percent per year, only forty percent as fast. The reasons for this smaller rate of growth in potential labor market participants include the growth in the size of the armed forces (3.9 percent per year) and the growth in the school population (9.2 percent per year). By contrast, in the period after 1969, the population grew at a smaller rate of 2.6 percent per year, while the number not in school grew by 7.5 percent, or nearly three times as fast. Meanwhile, the growth in those enrolled in school fell to 1.2 percent per year (from 9.2) while the armed forces shrank by 9.4 percent per year. Thus, accounting for the impact of the war raises the possibility that the flow of new labor market entrants, already swelled in size by the post-World War II baby boom, was "manipulated" and "adjusted" by not only (1) the long-run trend towards increased levels of education, but also (2) the short-run draft-deferment effects of staying in school, and (3) the impact of serving in the military that delayed the labor market entry of many of the oldest baby-boom young men by two or more years.

*Freeman does show that the number of men 18 to 24 years of age enrolling in school between 1951 and 1973 are related to the draft and the ending of the draft, but this relation is not considered when he estimates the flows of those going to work (see Freeman, 1975, Table 5).

Figure 1. Selected data on men 20 to 24 years old and on the armed forces.



Sources:

Men 20 to 24 years of age in the population, derived from Employment and Training Report of the President 1976, Table A-2, pp. 213-214.

Civilian men 20 to 24 years of age, both not enrolled and enrolled and in school, from ibid., Table B-6, pp. 269-270.

Total Department of Defense active duty enlisted personnel, from OASD (Comptroller), Directorate for Information Operations and Control, Selected Manpower Statistics, (Washington: Department of Defense, June, 1976), pp. 23.21s.

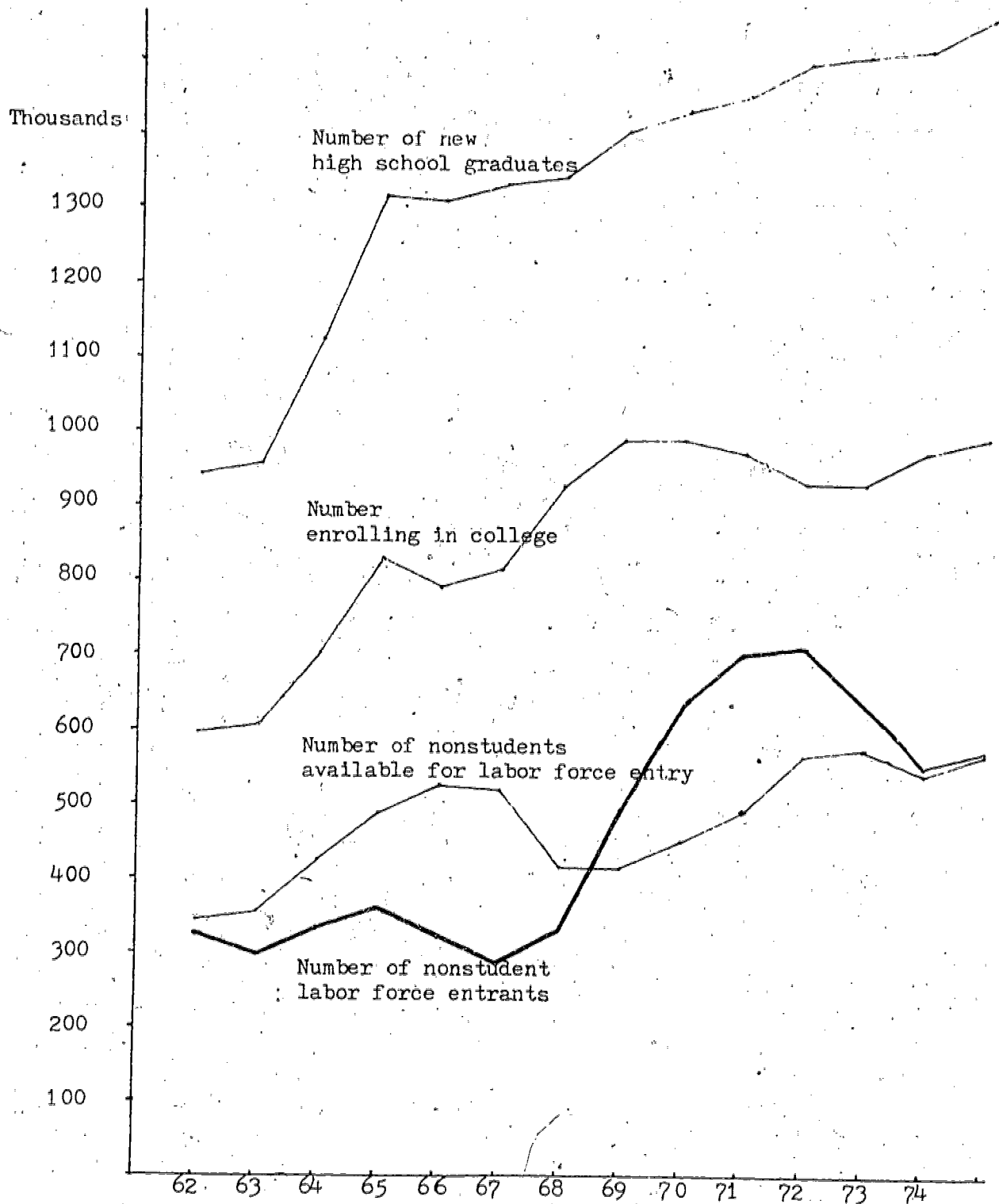
Figures 2 and 3 show more explicitly the impact of these forces for high school graduates and for college graduates, separately. In constructing these figures, the numbers of men receiving high school diplomas (and college degrees) each year were adjusted by subtracting the estimated numbers continuing in school, and were further adjusted for the impact of service in the armed forces. If these various series of figures have been estimated accurately,* the flows of nonstudent labor market entrants more than doubled at both the high school and college levels at the end of the 1960's.

Considering these tremendous increases in supply at both levels, in light of Freeman's analysis of demand, leads to the expectation that data since 1970 should show problems being experienced by all young groups entering the labor market. Indeed, the well-known problems evident in the labor market experiences of black teenagers, as well as in those of returning veterans, would appear to be consistent with this expectation, and high rates of youth unemployment also are not inconsistent (Figure 4). Some of Freeman's results also seem to support it.

First, in one study Freeman used an approach similar to Thurow's model of job competition, in which it is hypothesized that an oversupply of college graduates could result in the "bumping" of high school graduates from the better available jobs. Even though Freeman did not take into account the large growth in supply among high school graduates around

*We have attempted to check the reasonableness of our estimates by comparing these series with another set of estimated labor market entrance flows derived independently from data from the Bureau of Labor Statistics, Educational Attainment of Workers, various years. The two sets of estimates seem to agree on the whole, when the BLS series is adjusted to exclude students.

Figure 2. Estimated flows of male high school graduates.



Sources:

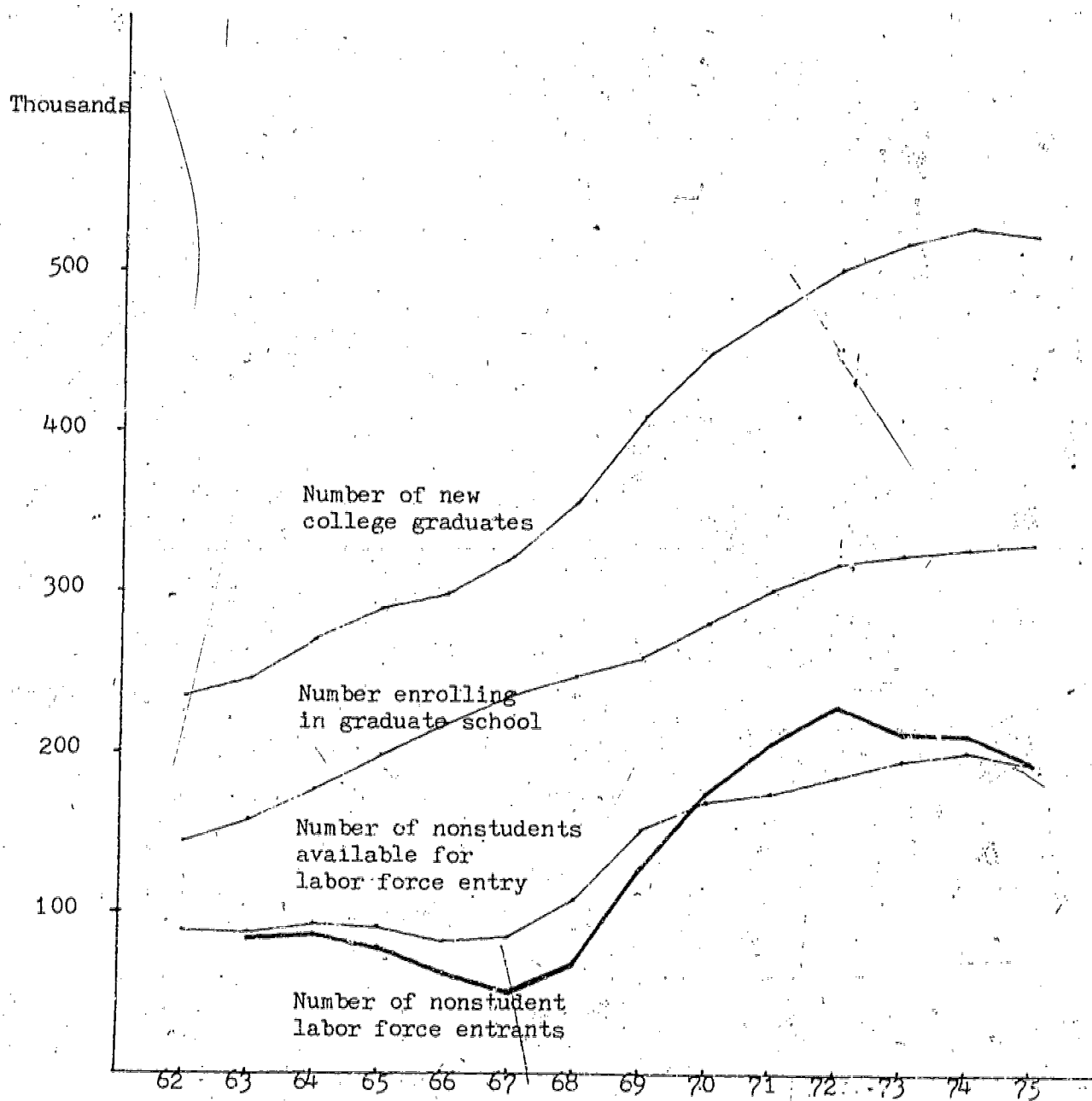
Number of new high school graduates from National Center for Educational Statistics, Projections of Educational Statistics to 1984-85, Table 20, p. 41; Projections to 1981-82, Table 20, p. 47.

Number enrolling in college from first-time degree-credit enrollment in all institutions of higher education, from Projections to 1984-85, Table 14, p. 31, and Projections to 1981-82, Table 14, p. 36.

Number of nonstudents available for labor force entry is computed as the difference between the two series described above.

Number of nonstudent labor force entrants is computed from the series described above, plus the estimated net flow between the armed forces and the civilian population. The net flow is estimated from annual armed forces separations (by education) from Data on Vietnam Era Veterans, a report prepared by the Veterans Administration submitted to the Committee on Veterans Affairs, U. S. Senate, 94th Congress, 2nd Session, Senate Committee Print No. 59 (Washington: USGPO, 1976), pp. 8-11.

Figure 3. Estimated flows for new male college graduates.

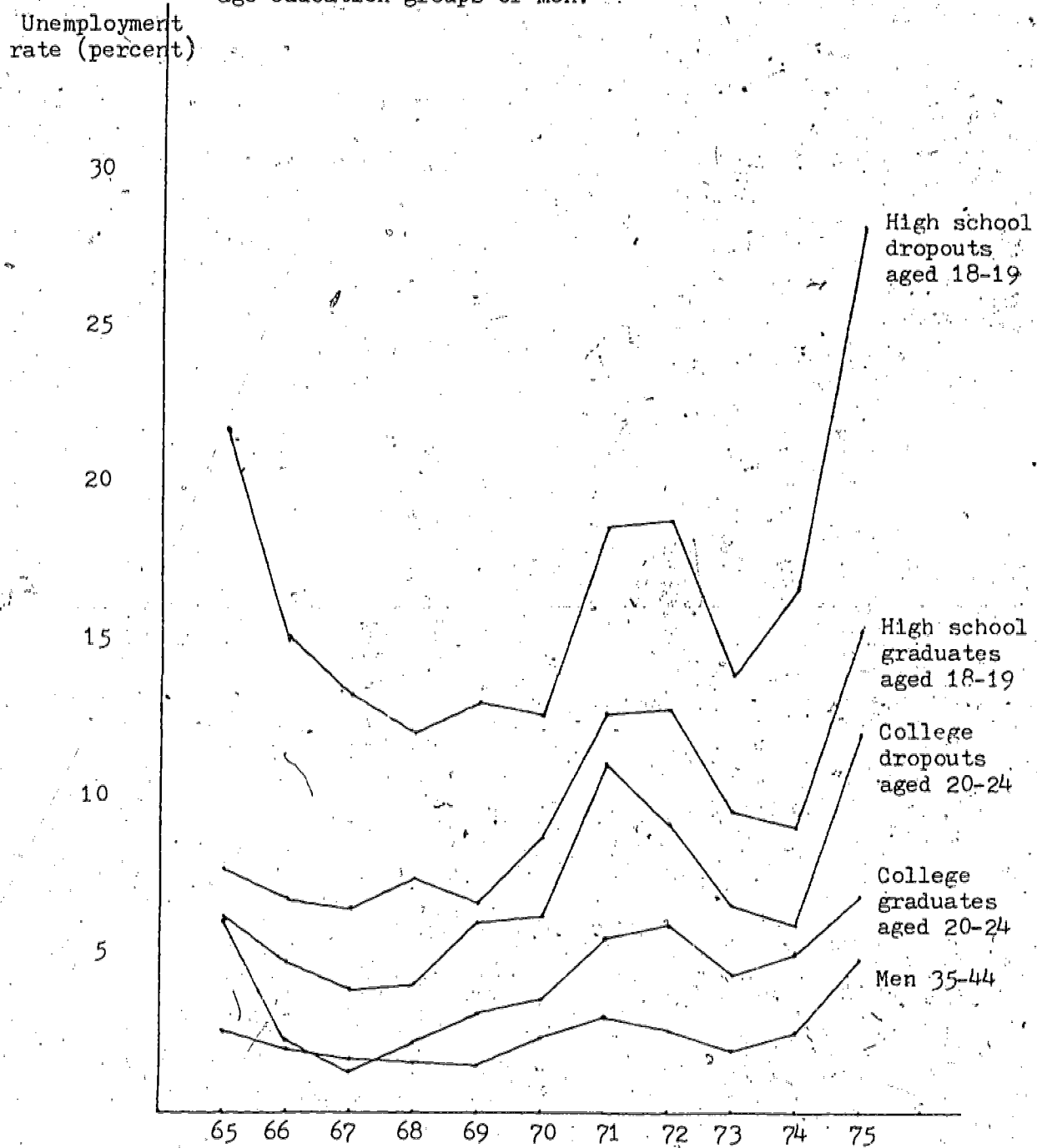


Sources:

Number of new college graduates, from Bachelor's degrees granted to males, National Center for Educational Statistics, Projections of Educational Statistics to 1984-85, Table 21, p. 42 and Projections of Educational Statistics to 1981-82, Table 21, p. 48. Number enrolling in graduate school is an estimate based on Master's, Ph. D.'s and Professional degrees granted to males; on total graduate enrollment in 4-year institutions of higher education; and on first-year students enrolled for master's and doctor's degrees. Sources: Projections to 1984-85, Tables (pages) 21 (42), 17 (34), B-5 (159); Projections to 1981-82, Table 21, p. 48; Projections to 1983-84, Table 17, p. 35. Number of nonstudents available for labor force entry is computed as the difference between the two series described above.

Number of nonstudent labor force entrants is computed from the series described above, plus the estimated net flow between the armed forces and the civilian population. The net flow is estimated from annual armed forces separations (by education) from Data on Vietnam Era Veterans, a report prepared by the Veterans Administration submitted to the Committee on Veterans Affairs, U. S. Senate, 94th Congress, Congress, 2nd Session, Senate Committee Print No. 59, (Washington: USGPO, 1976), pp. 8-11.

Figure 4. Unemployment rates for selected age-education groups of men.



Sources:

Unemployment rates from Bureau of Labor Statistics, Educational Attainment of Workers, Special Labor Force Reports 53, 65, 83, 92, 103, 125, 140, 148, 161, 175, 186.

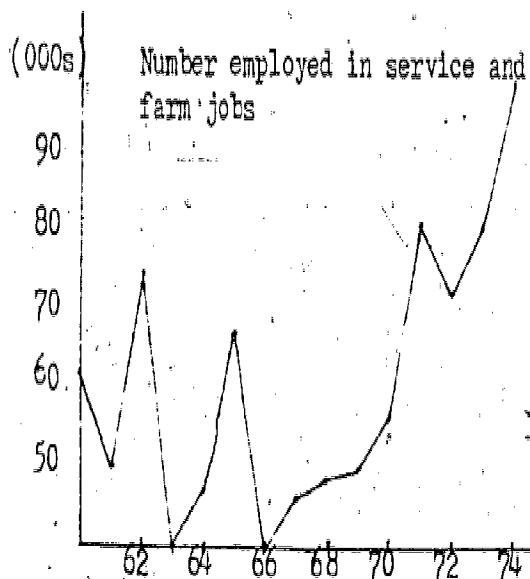
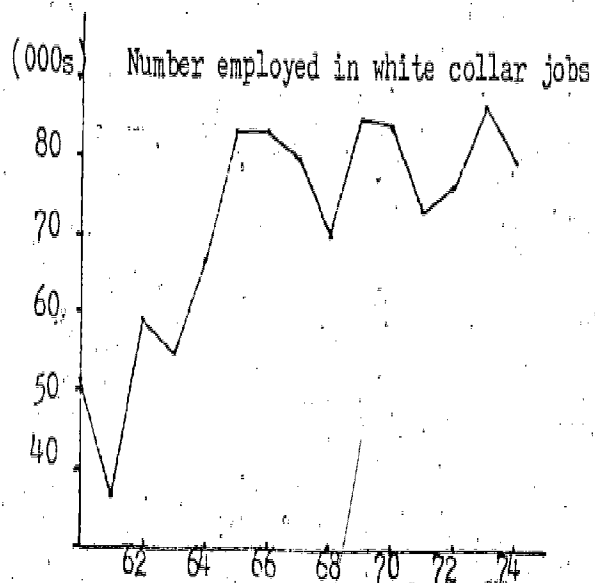
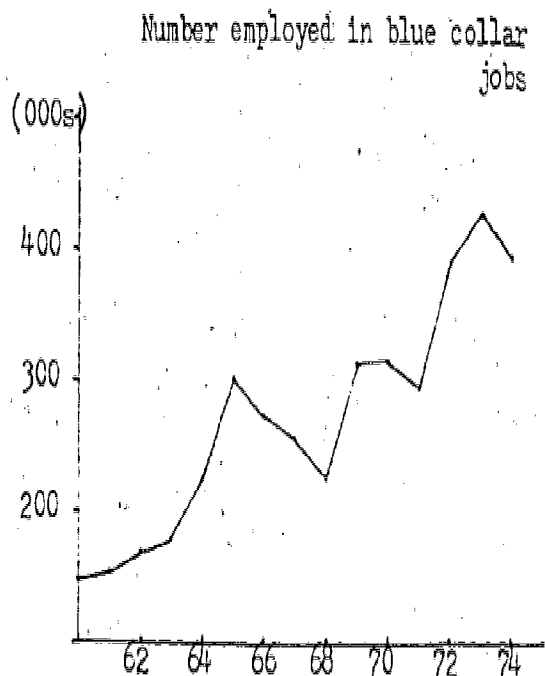
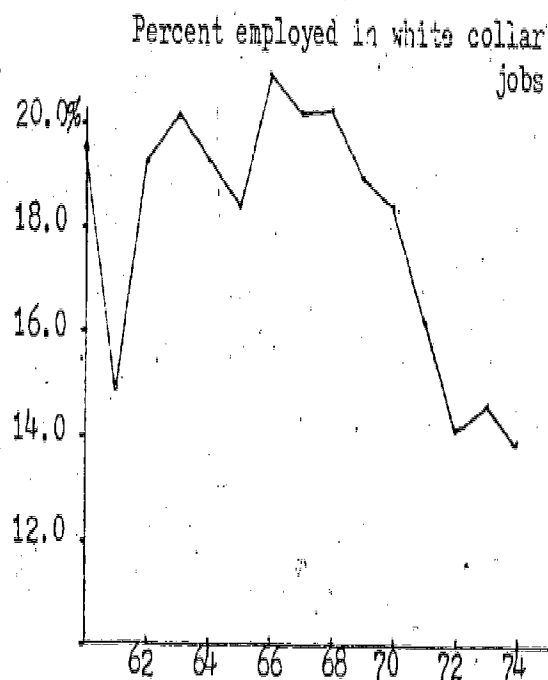
1970 due to the effects of the war, he nevertheless found a deteriorating job situation for both high school and college graduates: "the job structure of college graduates . . . deteriorated in the late 1960's/early 1970's . . . At the same time, however, the fraction of high school workers in white collar positions also fell (Freeman, 1974, p. 121)."^{*} In another study, Freeman calculates that the advantage enjoyed by college graduates over high school graduates in obtaining professional employment remained at .15 in both 1969 and 1974 (Freeman, forthcoming, Table 3);^{**} thus, the relative job position of college graduates, as compared to that of high school graduates, may not have changed for the worse after 1969.

Data from the Bureau of Labor Statistics portrayed in Figure 5 further shows a deteriorating job position for recent high school graduates. The proportion of new high school graduates employed in white collar jobs fell from 20.2 percent in 1966 to 13.9 percent in 1974, while the number so employed remained nearly constant. Meanwhile, the percent, as well as the absolute numbers, employed in service occupations and in farming grew.

^{*}Paradoxically, although Freeman analyzed occupational attainment in terms of a model allowing for "bumping," he did not analyze wages with the same model.

^{**}We are referring to mean values shown for males in a table principally devoted to displaying regression results. Unfortunately, the regression results are not themselves shown in full, making it difficult to interpret the results that are provided.

Figure 5. Employment of male high school graduates not enrolled in college.



Sources:

Employment from Bureau of Labor Statistics, Handbook of Labor
Statistics 1975: Reference Edition, Table 31, p. 90.

To summarize thus far, Freeman's work showing that the supply of college graduates grew faster than demand should be regarded as incomplete. The World War II baby boom, secular trends in educational attainment, and the war all combined to produce a huge increase in supply of both college graduates and those with less schooling occurring around 1970. Furthermore, data on the kinds of jobs which labor market entrants obtained seems to indicate that the large supplies were not accompanied by sufficient growth in demand to avert a deterioration at several levels. Finally, a deterioration in the labor market position of those with less than a college degree would have also been expected from Thurow's model of job competition, in which an oversupply of college graduates can result in the "bumping" of high school graduates and might not result in a worsening of the relative position of those with college degrees.

We finally turn to Freeman's work on the relative earnings of college graduates, in which he argues that relative earnings have fallen due to the oversupply. This is an impressive body of evidence based on data taken from many sources: annual reports about new college graduates, including both the Endicott reports and the College Placement Council (CPC) surveys; the Census' annual Current Population Reports entitled Consumer Income (CI); and the March 1969 and 1974 Current Population Surveys (CPS). Unfortunately, it appears that he has used some inappropriate comparisons to support his thesis.

First of all, in several instances comparisons are made between the earnings of new college graduates and those of all production workers or

of all year-round full-time workers. In these cases, data on the starting salaries of new college graduates are based on the Endicott or CPC series, which are not entirely satisfactory sources for the purpose.* More than this, however, the comparison with all production workers or all workers is inappropriate. If one were interested in studying change in the labor market returns to college, one would ideally compare the earnings of workers with college degrees to the earnings of workers who are otherwise similar but have less schooling; thus, one might compare earnings data on those with college degrees with data on those with high school diplomas. In other words, one would not compare the earnings of college graduates to the earnings of all workers. Indeed, Thurow has shown under the job competition model that, if an oversupply of college graduates can lead to the "bumping" of high school graduates downward in the distribution of earnings, then one result can be that the earnings of college graduates could be declining in relation to the earnings of all men while at the same time be rising in relation to the earnings of both high school workers and grade school workers (Thurow, 1974, pp. 409-410). Thus, a change in the ratio of the earnings of college graduates to the earnings of all workers tells us little about a change in the relative position of college graduates.

*The Endicott reports are based on surveys of selected firms, and the data are not necessarily representative of all new college graduates. The CPC data refers to salary offers, not to acceptances, and were limited to those recorded at college placement centers. According to Perrella (1973, Table 5), less than one-fourth of new college graduates actually obtained a first job through school placement offices during the period of interest.

In other instances, Freeman does compare the earnings of college and high school graduates, and shows that the ratio of the two figures has fallen since 1969. The possible problem with these comparisons is that, in nearly every case, he has used data for men at least 25 years of age. Specifically, in several cases (1974, Table 3; 1975, Table 2; and 1976, Figure 3) the earnings of college graduates aged 25-34 are compared with the earnings of high school graduates aged 25-34, and the ratio is shown to drop between 1969 and 1973 or 1974. The decline is argued to be related to an oversupply of college graduates occurring in the late 1960's and early 1970's. However, the college graduates whose 1969 earnings are being compared are those who graduated from college between about 1957 and approximately 1966; these are the graduating classes who would be aged 25 to 34 by 1969. Similarly, the college graduates involved in the 1973 comparison are the graduating classes of about 1961 to approximately 1970. Thus, neither set includes the large post-1969 college graduating classes. Interestingly, the CI series of published reports used by Freeman actually does contain information on a more relevant group: namely, on year-round full-time workers aged 18-24, who are high school and college graduates. As we shall show below, the ratio of college to high school wages has not fallen among men of this age group, and the same is true from results based on data for new labor market entrants taken from the National Longitudinal Surveys.

A Reappraisal of Relative Earnings Data

From the foregoing it should be clear that a large number of hypotheses can be advanced concerning the behavior of relative earnings of young workers

during recent years. First, there are several reasons for expecting that the earnings of new labor market entrants as a group would have fallen relative to the earnings of more experienced workers. These include the following factors that were discussed above:

1. the increased supplies of new labor market entrants at all levels of education occasioned by the sheer size of the post-World War II baby boom birth cohort;
2. the phenomenon that supplies increased dramatically in the late 1960's, rather than gradually, resulting from the combination of:
 - a. the secular trend towards ever-increasing educational attainment in the population,
 - b. the draft-deferment effects of staying in school during the mid- to late-1960's, and
 - c. the delays in labor market entrance due to service in the military during the war in Southeast Asia; and
3. the possibility that, even if it were true that the only significant "oversupply" occurred among those with college education, oversupplies at higher levels of schooling can lead to a "bumping" of all those with lower levels of schooling, such that all new entrants experienced declines relative to established and unaffected older workers.

In addition to these reasons, that were introduced earlier, another reason occurs to us for a decline in the average earnings of all youth relative to those of older workers:

4. the exceptionally poor economic climate occurring since the late 1960's may have had a disproportionate impact on young workers because a young worker is more likely than an older one to be in the job market at any given time, and entry-level wages may be more sensitive to economic conditions

than wages of experienced workers, in whom employers may have made substantial investments that the employers would wish to protect.* Among the economic forces that prevailed during the period that must not be overlooked:

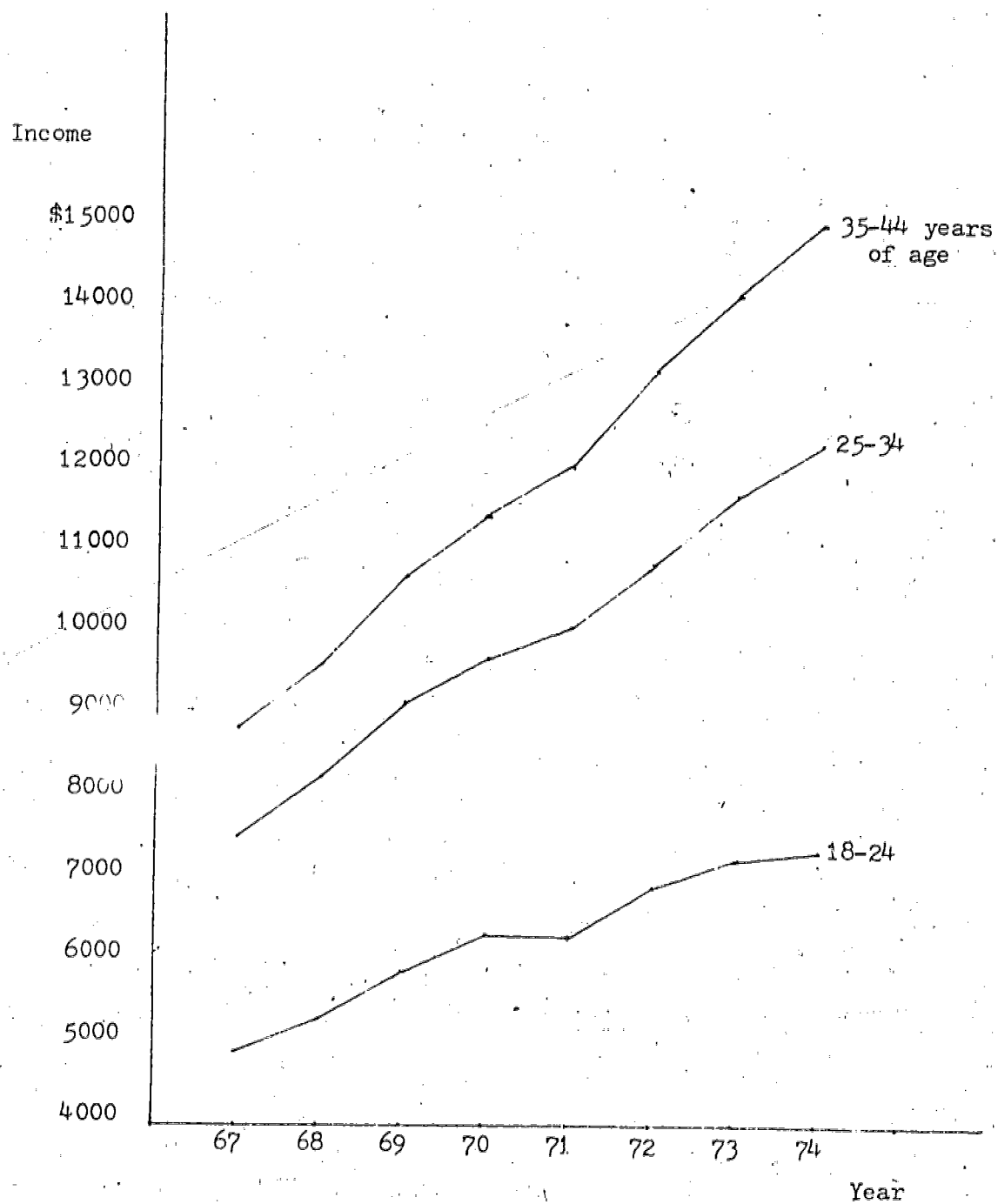
- a. the highest levels of unemployment since the Great Depression;
- b. the highest levels of inflation in many years;
- c. the imposition of wage and price freezes and controls;
- d. forces on specific sectors of the economy, such as the cutbacks in federal spending for defense, aerospace and other R&D activities; and possibly
- e. the unsettling nature of contemporary events in general, reducing overall confidence and increasing uncertainty and pessimism about the future, including: urban unrest, the campus-Vietnam protests, Watergate, the devaluation of the dollar, and the oil embargo.

Figure 6 depicts the trends from 1967 to 1974 in the mean total incomes of some age groups of male year-round full-time workers.

According to these data, the income trends for male workers are associated with age. In fact, the incomes of men aged 18-24 rose at an average rate of 6.1 percent per year, only barely higher than the rise in prices, which averaged 5.7 percent per year. However, the trends among older workers were somewhat higher, as incomes rose among men 25-34 by 7.4 percent, among men 35-44 by 7.8 percent, and among men 45-54 by 8.1 percent. Even the trends for the oldest groups were higher than for young workers, as incomes

*This argument is consistent with Richard Freeman's "active labor market" hypothesis. See Freeman, 1976, pp. 10-11; and Freeman, forthcoming.

Figure 6. Incomes of selected groups of men.



Sources:

Income data refer to mean total income in current dollars of year-round, full-time workers, from Bureau of the Census, Current Population Survey: Consumer Income, Series P-60, Nos. (Tables) 92 (4, 5), 97(57, 58), 101 (57, 58).

for men 55-64 and for men 65 and older rose by 8.7 and 7.6 percent per year, respectively. Although such evidence is hardly conclusive, the trends appear to indicate that incomes rose more slowly for the youngest workers and new labor market entrants than for older, more experienced workers.

Although the data suggest that earnings of young workers and new labor market entrants as a group have declined relative to previous groups of entrants and older workers, this tells us little about specific changes affecting college graduates. Freeman's work asserts that the relative earnings position of new college graduates has deteriorated due to an oversupply beginning in the late 1960's and early 1970's. In addition to this factor, other reasons might be posed in the form of hypotheses concerning the relative earnings of college graduates:

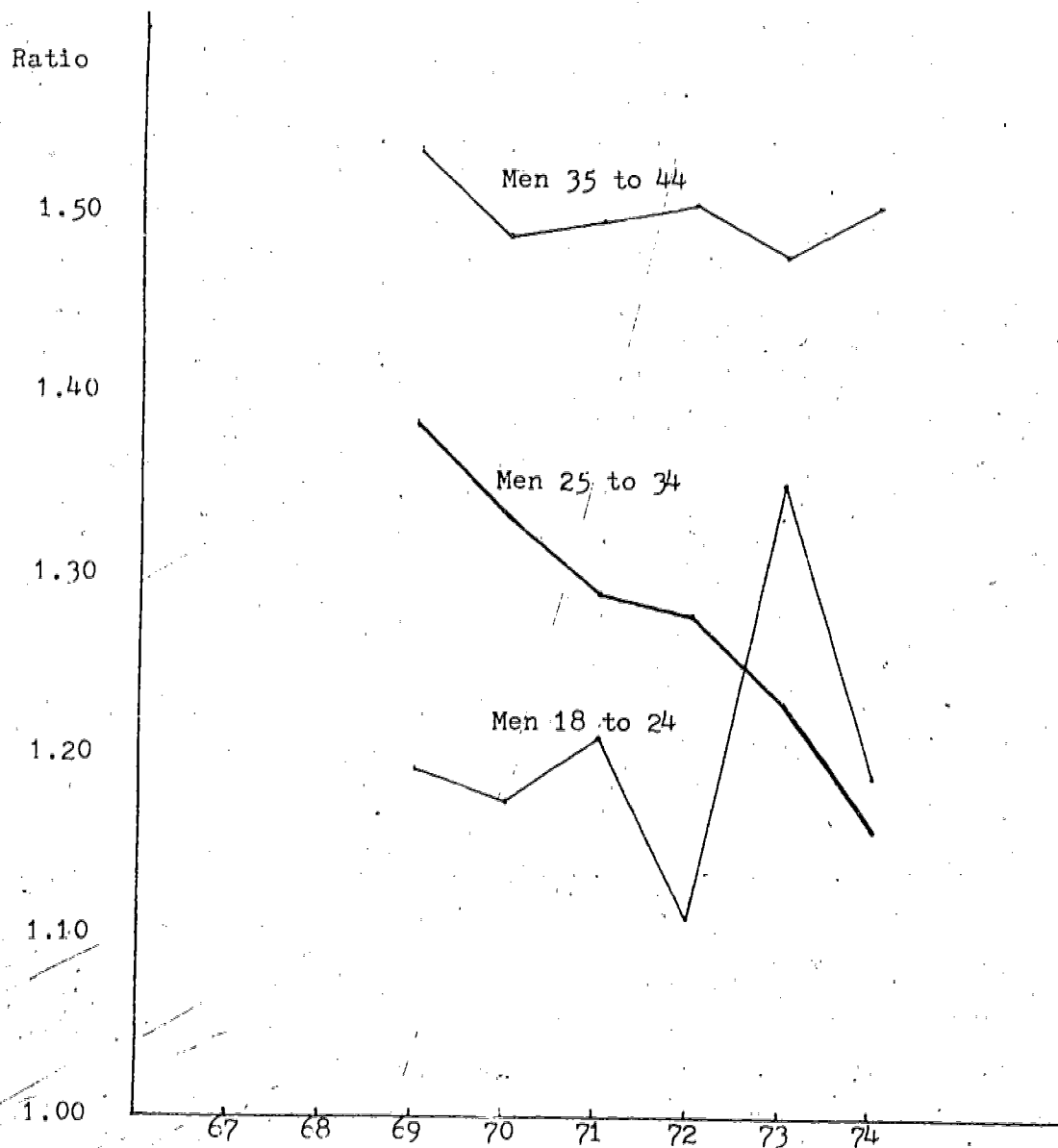
1. a lack of enthusiasm on the part of employers to compete vigorously for new college graduates in light of the campus protests of the late 1960's, during which at least some campus employment recruiters were harassed to leave the campus;
2. the effects of changing attitudes reflected in styles of hair, dress and lifestyles (e.g., not inconsistent with the "Greening of America" hypothesis) which may include changes in the attitudes of college students and graduates on the pursuit of academic excellence or on their selection of job opportunities to maximize earnings, and which may also include employers' reactions to these changes;
3. a declining relative position of new white male college graduates due to more effective competition posed by blacks and women, both new graduates and more experienced workers;

4. changes in the distributions of graduates by fields of study, consisting of increases in the social sciences at the expense of engineering, accounting, or business administration;
5. changes in "quality," whereby the phenomenal growth in college and university enrollments occurring during the 1960's may have coincided with declines in quality of the average graduate, the average institution and/or the average faculty member.

Thus, it is important to investigate income ratios between men with college degrees and those with high school diplomas in order to learn about changes in the relative position of college graduates occurring since 1969. Figure 7 portrays the ratios of the incomes of college and high school graduates from 1969 to 1974, and these data refer again only to year-round full-time workers. As is shown, the ratio declines continuously among men aged 25 to 34 years, which is the age group to whom Freeman has paid special attention. However, as can be seen in the figure, although the ratio has also declined moderately among somewhat older men (i.e., 35 to 44 years of age), it has not declined among the youngest group of those 18 to 24 years of age. In this latter group, the ratio is highly variable, but the trend line appears to be a flat curve. It is important to consider the behavior of income trends of each age-education group separately. This is shown in Figure 8 for selected groups, where trends are based again on incomes of year-round full-time male workers, but where the plotted points are estimates taken from simple trend line regressions of incomes on time, permitting us to abstract from minor year-to-year fluctuations. Except for the group of college graduates

*See Crowley (1972).

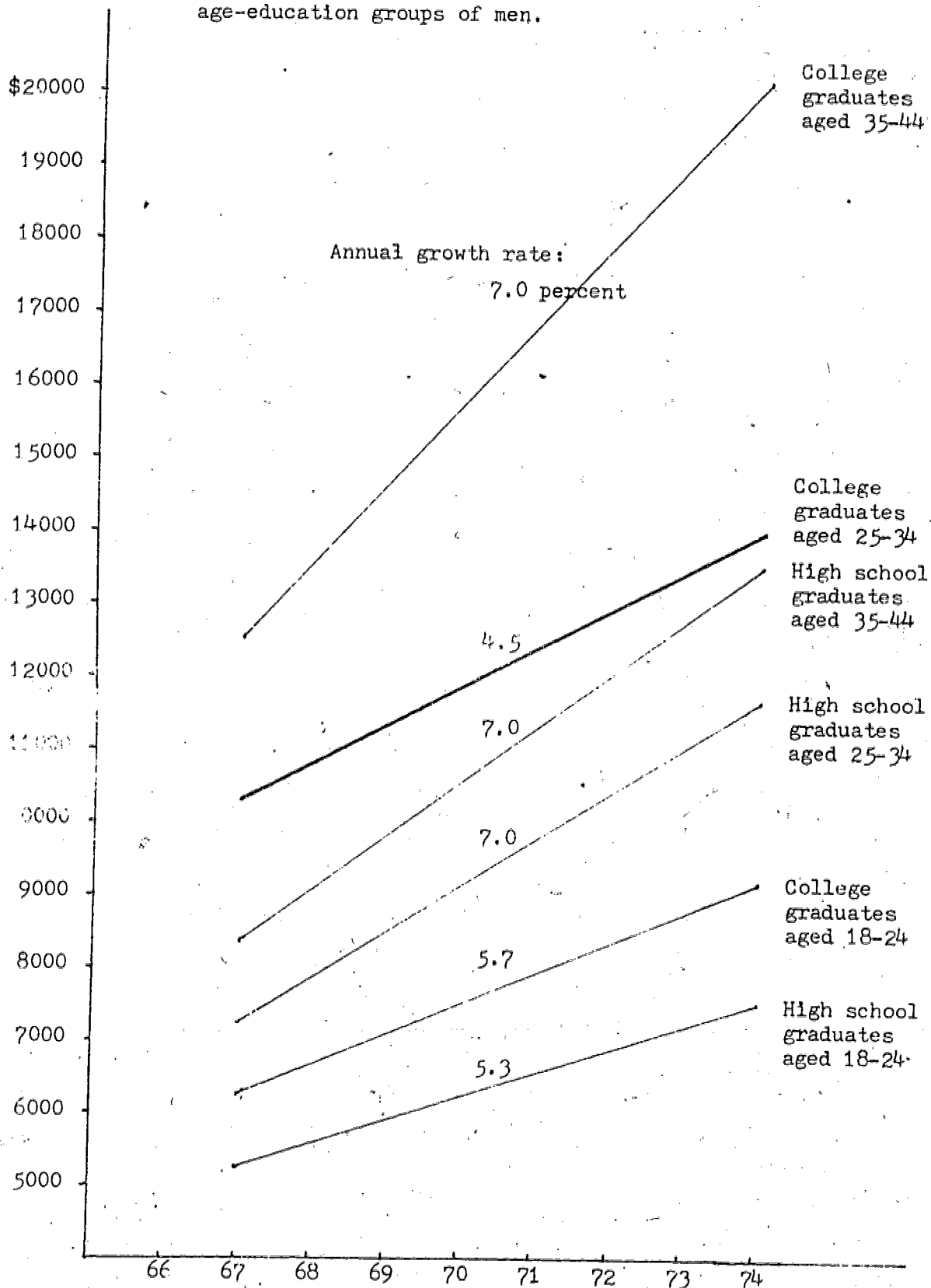
Figure 7. Ratios of income of college graduates to income of high school graduates within selected age groups of men.



Sources:

Income data refers to mean total income in current dollars of
year-round full-time workers, from Bureau of the Census, Current
Population Survey: Consumer Income, Series P-60, Nos. (Tables)
92 (4, 5), 97 (57, 58) and 101 (57, 58).

Figure 8 . Trends in incomes of selected age-education groups of men.



Sources:

Trend lines from simple regression of income on time, performed separately for each age-education group. Annual growth rate r computed from $(\hat{Y}_{74} + \hat{Y}_{67})^{1/7}$, from $\hat{Y}_{k+t} = \hat{Y}_k (1 + r)^t$ and \hat{Y}_i being estimated income from the regression results.

Income data refers to mean total income in current dollars of year-round full-time workers, from Bureau of the Census, Current Population Survey: Consumer Income, Series P-60, Nos. (Tables) 92 (4, 5), 97 (57, 58) and 101 (57, 58).

25 to 34 years of age, the trend lines covering 1967 to 1974 reveal that (1) rates of income growth are smallest for the youngest workers considered, regardless of the level of schooling, and (2) the trends do not appear to be related to the level of schooling at all.

We take a final look at these published data in Table 1, which contains average annual rates of growth in incomes for all major age-education groups of year-round full-time male workers. Among every group of men aged older than 24, incomes grew slowest for college graduates, which is consistent with Freeman's results from the same data. However, among the relevant age group of men 18 to 24 years, the rate of income growth of those with college is hardly different from that of high school graduates (i.e., 3.7 versus 3.8 percent) and exceeds that of those with only eight years of school (i.e., 3.7 versus 2.8 percent). Although these data show lowest rates of growth for youth and college graduates, it is far from straightforward to conclude that they support the thesis that the relative position of college graduates has declined due to an oversupply, for two reasons. First, the results on males aged 18 to 24 are inconsistent with the hypothesis that an oversupply occurring in the late 1960's and early 1970's is a causal factor adversely affecting the starting salaries of college graduates. Second, the uniformly unfavorable results for all age groups of male college graduates over 25 years of age are inconsistent with the view that labor market returns to college are declining due to phenomena impacting on new college graduates.

Table 1. Average annual rates of growth in incomes of year-round full-time male workers, by age and level of education, during 1969 to 1974.

Age	Years of Education		
	8	12	16
18-24	2.8	3.8	3.7
25-34	4.4	6.3	2.6
35-44	7.5	6.3	5.8
45-54	7.6	7.1	5.3
55-64	6.7	7.4	5.5
65 and older	5.3	8.2	4.4

Source:

Computed from mean total incomes in current dollar of year-round full-time male workers, from Bureau of the Census, Current Population Survey: Consumer Income, Series P-60, Nos. (Tables) 92 (4, 5), 97 (57, 58), and 101 (57, 58).

Of course, this analysis is based on mean total incomes of age-education groups, and such aggregate data are far from ideal. Better information is available from a recent study based on data from the National Longitudinal Surveys (NLS). The NLS is a large research project sponsored by the U. S. Department of Labor and conducted by the Center for Human Resource Research, The Ohio State University. Specifically, the surveys include information on a national sample of men who were 14 to 24 years of age when first interviewed in 1966. Since follow-up surveys were conducted in every year from 1967 to 1971, the data comprise an ideal source of micro information for examining changes occurring during this period of time.

From all the available data, information is selected for a first group of young men who were in school in 1966 and who had left school and were employed full-time for wages or salary in 1967 or 1968.* Analysis is performed to ultimately compare and contrast the experience of this first group of new labor market entrants with that of a second group consisting of those still in school in 1969 who entered the labor market in 1970 (or 1971).

For each of the two groups separately, multiple regression is performed relating the hourly rate of pay (in 1971 dollars) received by the new labor market entrants at the first survey out-of-school** to a series

*These dates refer to surveys; surveys are conducted in October-December of each year.

**Specifically, the relevant hourly rate of pay is the wage being earned at the time of the NLS survey. Since surveys are conducted in October-December of each year, the wage used for a June graduate is a wage earned after almost one-half year out-of-school.

of explanatory measures. The latter include variables to control for area and regional wage-price differences as well as personal characteristics of the youth: level of education, total work experience as well as tenure with the firm, and measures of socioeconomic level, health, and ability. The regression results contain no hint of a decline in the relative wage position of new college graduates (Table 2).

In the regression for the labor market entrants in the earlier period, those who were college graduates were paid \$1.04 per hour more than were high school graduates (i.e., the reference group in the regression). Comparing this to the analogous figure for entrants of the later period (i.e., \$0.99 per hour) yields a difference of 5¢ per hour which is small in relation to the standard errors involved (i.e., 0.25 and 0.22, respectively) and to the length of the period (i.e., about three years elapsed between 1967-68 and 1970-71).

It is more instructive to use these results in another way. From the regressions it is possible to calculate an estimated wage for each of the two periods for hypothetical youth with a given set of characteristics, thus statistically holding many factors constant; we do this for a hypothetical college graduate and for an otherwise comparable high school graduate. This procedure yields the estimates provided in Table 3, which correspond to declines in real wages of 3.8 and 4.6 percent per year. These data suggest that high school graduates registered at least as large a decline in real wages as the college graduates; the wages of neither kept pace with inflation. But, the ratio of college to high school graduates' earnings has not diminished.

Table 2. Regression Results for Hourly Rates of Pay ^a of White ^b Male Labor Market Entrants, for 1967 and 1968 and for 1970 and 1971.

Explanatory Variables	Entrants of 1967 and 1968		Entrants of 1970 and 1971	
	Coeff.	t-value	Coeff.	t-value
<u>Level of schooling:</u>				
Less than high school graduation	0.19 ^c	(0.51)	0.25 ^c	(0.64)
High school graduate	(omitted group)		(omitted group)	
Some college	0.38**	(1.78)	0.37**	(1.74)
Associate degree	0.42 ^c	(0.85)	0.23 ^c	(0.52)
College graduates	-1.04**	(4.20)	0.99**	(4.47)
<u>Training:</u>				
Received some post-school	0.03	(0.16)	0.19	(0.99)
<u>Experience (months):</u>				
Total post-school work experience	-0.02	(0.58)	0.04	(1.11)
Experience with the firm	0.04	(1.09)	0.02	(0.64)
<u>Personal characteristics:</u>				
Ability measure	0.03**	(1.73)	0.01	(1.11)
Reports health problem	-0.09 ^c	(0.33)	-0.29 ^c	(1.09)
Index of socioeconomic level	0.01	(0.19)	0.04	(0.82)
<u>Area/regional:</u>				
Lives in an SMSA	0.42**	(2.27)	0.36**	(2.29)
Lives in the South	-0.50**	(2.66)	-0.30	(1.61)
Constant term	1.38	(2.19)	1.17	(1.77)
R^2	.24		.16	
F-ratio	5.70		4.66	
n	176		227	
<u>Dependent variable:</u>				
mean	\$3.13		\$2.94	
std. dev.	1.19		1.26	

Universe: Young white men 17 to 24 years of age and enrolled in school either base year (i.e., in 1966 or in 1969) and who subsequently left school and were employed full-time wage and salary workers in one of the two succeeding years (i.e., in 1967 or 1968, or in 1970 or 1971, respectively), except young men with any prior military service and with more than a bachelor's degree. See Grasso and Myers, forthcoming.

Note: Coefficients shown in dollars and cents, in 1971 dollars.

- ^a Hourly rates of pay refer to wages received at the time of the first survey out-of-school. Surveys are typically conducted in the last quarter of each calendar year.
- ^b Analogous analysis for blacks and others is precluded by small sample size.
- ^c Coefficient based on fewer than 25 respondents with that characteristic.
- * Statistically significant at .10 level.
- ** Statistically significant at .05 level.

Table 3. Estimated Wages of White College and High School Graduate
New Labor Market Entrants, for 1967-68 and for 1970-71.

(Standard errors in parentheses)

	Estimated Hourly Wages		Average Annual Percent Change
	Entrants in 1967 and 1968	Entrants in 1970 and 1971	
(A) College graduate	\$4.08 (0.21)	\$3.63	-3.8%
(B) High school graduate	\$3.04 (0.20)	\$2.64	-4.6%
(C) Difference (A-B)	\$1.04	\$0.99	---
(D) Ratio (A+B)	1.34	1.38	---

Source:-

Based on regressions shown in Table 2. For more information, see
Grasso and Myers, forthcoming.

Note: Wages shown in 1971 dollars.

Thus, evidence from both the NLS and the CI series of published reports agree. The simple hypothesis about recent oversupplies in the college job market is not supported, and the results appear to raise many more questions than they answer. We turn in the final section of this paper to a discussion of the possible implications of these results.

Summary and Implications

This paper has reviewed existing work and presented new analyses on changes in the labor market effects of higher education. In the review, attention was devoted principally to the work of Margaret Gordon and of Richard Freeman in order to gain perspective on recent changes in college-labor market effects. Gordon's analysis of historical trends on the job situation of college graduates was noted to be compatible in some ways with the labor market analyses of Charles Killingsworth and Denis Johnston (i.e., which pointed to long-run changes in the labor market that had favored educated workers), as well as with arguments of a recent trend towards the increasing underemployment of college graduates (i.e., employment in less than college-level jobs) made by several authors, including Berg, O'Toole, Rawlins and Ulman. At the same time it was noted that questions on the relative earnings of college graduates are far less settled, due to competing hypotheses.

On the issue of whether there have been changes in relative earnings among recent college graduates, the work of Richard Freeman was reviewed. His analyses were found to be incomplete in some respects, and it was noted that inappropriate comparisons had been made, thus raising doubt about

the usefulness of the findings and implications. Reanalyses of published data from the Current Population Reports as well as analysis of microdata from the National Longitudinal Surveys lead to new and consistent findings. Results indicate (1) declines in relative earnings among new labor market entrants as a group, and (2) declines in relative earnings among older and more experienced college graduates. Results do not support the hypothesis that a recent oversupply of college graduates has led to declines in relative earnings among new college graduates.

All of this prompts us to speculate on the nature of changes observed and on their possible implications. First of all, the data are consistent with the hypothesis of a cohort effect, in which the baby boom cohort is now at a relative disadvantage in comparison with earlier cohorts and may remain in a promotion-squeezed, excess-supply condition throughout their working careers. The data are also consistent with more complex hypothesis, such as Thurow's model of "job competition," but the data reviewed in this paper are not adequate to eliminate any such competing hypotheses. Nonetheless, it is important to note that data on new labor market entrants do not support the hypothesis of declining relative earnings for recent college graduates compared to recent high school graduates.

The data that show a decline in the relative earnings of men with college degrees are those that relate to older and experienced workers. For each age group of men--from those 25 to 34 years of age up to men over 65 years of age--the rate of earnings growth from 1969 to 1974 for college graduates was invariably smaller than the rates of growth for those with less schooling. Rather than argue that these declines for

older college graduates are related causally to the supply of new college graduates entering the labor market after 1969, we are tempted to speculate on other factors.

First of all, the decline observed seems to be similar to that noted by Gordon in data for the 1930's and 1940's, where we presume that economic climate and government policies combined to soften the relative advantage of college graduates. Recent federal actions that may be responsible for similar effects might include specific actions in federal spending (i.e., on defense, R&D, aerospace, government employment, and freezes and controls on wages and prices).

Second, the decline observed may be related in some way to a new era of structural change in the labor market. Killingsworth had argued that structural changes operated to the disadvantage of workers with little education between 1950 and the early- to mid-1960's. Then, Johnston had shown that data from 1964-69 no longer support Killingsworth's labor market "twist"; perhaps our findings are merely consistent with the behavior of the "twist." If so, this would warrant further research on the role of technological change, consumer trends, and other factors bearing on changes in labor market structures. Presumably such research should also take heed of trends in worker productivity and of the possible impacts on the labor market of the growing energy problem.

It should be obvious from all of this that more research is needed to illuminate the role of higher education in the labor market, for many competing hypotheses can be posed using the factors speculated upon

above. Hypotheses about the many factors should be tested, for the confirmation of any one of these would lead to vastly different conclusions and implications than would the confirmation of another. The importance of higher education to American society historically--and likely continuing in the future--demands our attention.

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